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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/482,023	01/13/2000	Devendra T. Barot		6462

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Mr Devendra T Barot
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EXAMINER

RIDLEY, BASIA ANNA

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 04/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/482,023	Applicant(s) BAROT, DEVENDRA T.	
	Examiner Basia Ridley <i>BR</i>	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10,15-20 and 22-36 is/are pending in the application.
- 4a) Of the above claim(s) 22-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10,15-20 and 30-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 11 February 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on 11 February 2003 have been approved by the examiner. A proper drawing correction or corrected drawings, **incorporating formal changes required by attached Form PTO-948 (see Paper 5)**, are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim(s) 18, 20, 31-33 and 36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

✓ claim(s) 18 recite(s) the limitation(s) "ratio in the range from 3 to 7". While the original specification discloses that said ratio of the internal diameter of the combustion chamber, which appears to be equal to the inlet diameter of the throat, to the outlet throat diameter can range from 3 to 6 (see page 4, third paragraph), the specification does not disclose any range from 3 to 7;

- claim(s) 20 recite(s) the limitation(s) "said quench ring has an inner diameter that is greater than the diameter of said throat outlet, said quench ring inner diameter being

acceptable,
since not
entering
shv not
entered

mainly
would need
to amend
the entire
claim

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sufficiently large to substantially prevent damage to said quench ring”. While the original specification discloses that the new design of the quench ring will be more successful in preventing damage to the quench ring than design shown in Fig. 1, because the distance between the throat opening and the quench ring is longer in the new design, the specification does not mention the relationship between the inner diameter of the quench ring and the diameter of the throat outlet, nor any benefits associated with controlling said relationship;

*not
amended*

- claim(s) 31 recite(s) the limitation(s) “said heating element extends from said outlet to said inlet”. Since the original specification discloses that the internal diameter of the combustion chamber is equal to the inlet diameter of the throat (see above), the throat inlet appears to be defined as the last part of the combustion chamber which has diameter equal to the internal diameter of the combustion chamber. Neither the drawings, nor the specification disclose heating element extending from said outlet of the throat to said inlet of the throat;

*not
amended*

- claim(s) 32 recite(s) the limitation(s) “said heating element is a spirally wound member having a first diameter near said throat inlet and a second diameter near said throat outlet, wherein said first diameter is greater than said second diameter”. The original specification does not disclose any specifics of recited heating element;

*not
amended*

- claim(s) 33 and 36 recite(s) the limitation(s) “said heating element extends from said outlet to above said inlet” or “said heating element extends beyond said inlet into a portion of said combustion chamber”. Since the original specification discloses that the internal diameter of the combustion chamber is equal to the inlet diameter of the throat (see above), the throat inlet appears to be defined as the last part of the combustion

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chamber which has diameter equal to the internal diameter of the combustion chamber.

Neither the drawings, nor the specification disclose heating element extending from said outlet of the throat to above said inlet of the throat;

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10, 15-20 and 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Admitted Prior Art (see Fig. 1-2 of the instant application) in view of Takada et al. (JP 61-222939).

Regarding claim(s) 10, Admitted Prior Art disclose(s) similar quench gasifier comprising:

- a combustion chamber;
- a quench chamber adjacent to said combustion chamber;
- said combustion chamber including a throat adjacent to said quench chamber for directing produced gases from the combustion chamber to the quench chamber; wherein
- said throat includes an inlet adjacent to said combustion chamber, said inlet having an inlet diameter (D_1), an outlet adjacent to said quench chamber, said outlet having an outlet diameter (D_2 and D_3), and an inner and an outer surface between said inlet and said outlet;
- wherein said inlet diameter (D_1) is greater than said outlet diameter (D_2 and D_3).

The Admitted Prior Art does not disclose an electrical heating element between

said inner and said outer surfaces.

Takada et al. teaches that it is desirable to install an electric heater in the inner and said outer surfaces of the throat, for the purpose of preventing slag from solidifying in the throat (Fig. 2 and page 2, column 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to add an electrical heating element between said inner and said outer surfaces, as taught by Takada et al., in the apparatus of Admitted Prior Art, for the purpose of preventing slag from solidifying in the throat.

Regarding claim(s) 34, Admitted Prior Art disclose(s) similar quench gasifier comprising:

- a combustion chamber;
- a quench chamber adjacent to said combustion chamber, said quench chamber having a gas outlet for directing gases away from said quench chamber;
- said combustion chamber including a throat for directing produced gases and slag from the combustion chamber to the quench chamber; wherein
- said throat comprising an inlet, an outlet, and an inner and an outer surface between said inlet and said outlet;
- wherein said inner surface has a curved conical contour (Fig. 2).

The Admitted Prior Art does not disclose an electrical heating element between said inner and said outer surfaces.

With respect to Takada et al. the same comments apply as set forth above.

Regarding claim(s) 15, 17-20 and 30, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, Admitted Prior

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Art discloses the gasifier wherein:

- said inner surface comprises a wind tunnel profile (Fig. 2);
- the ratio of said inlet diameter to said outlet diameter is at least 3 (Fig. 2);
- said ratio is in the range from 3 to 7 (Fig. 2);
- said quench chamber comprises a quench ring substantially axially adjacent to said throat outlet, such that the quench gasifier does not include a plenum chamber (Fig. 1);
- said quench ring has an inner diameter that is greater than the diameter of said throat outlet (Fig. 1);
- said inlet diameter gradually and continuously decreases to said outlet diameter along said inner surface (Fig. 2).

Regarding claim(s) 16, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, Takada et al. discloses the gasifier wherein:

- said throat further comprises a layer of insulating refractory material between said electrical heating element and said outer surface (Fig. 2);

Regarding claim(s) 31, 33 and 36, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, while Takada et al. does not explicitly disclose that said heating element extends from said outlet to said inlet, or into a portion of said combustion chamber, the reference teaches that the heater is place in locations where slag solidification might be a problem (Page 2). As the specification is silent to unexpected results it would have been obvious to one having ordinary skill in the art at the time the invention was made to extend said heating element into other areas where slag solidification is a problem, including extends from said outlet

to said inlet, or into a portion of said combustion chamber. Doing so would amount to nothing more than a use of a known element for its intended use in a known environment to accomplish entirely expected result.

Regarding claim(s) 32, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, while Takada et al. does not explicitly disclose changing the diameter of the heating element, the examiner takes notice that it was known in the art at the time of the invention that increasing area of electrical heating element will increase the heat capacity of said element. Therefore the electric heater capacity is a variable that can be modified, among others, by varying the area of said heater and the heater area, and inherently a heater diameter, would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the heater diameters cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the heater diameters in the apparatus of Takada et al. to obtain the desired balance between the construction cost and the heat capacity (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

Regarding claim(s) 35, Admitted Prior Art in view of Takada et al. disclose(s) all of the claim limitations as set forth above. Additionally, Takada et al. discloses the gasifier wherein the heating element is near said inner surface, such that the heating element substantially follows said inner surface. As the specification is silent to

unexpected results it would have been obvious to one having ordinary skill in the art at the time the invention was made to install the heating element of Takada et al. near said inner surface having curved conical contour of Admitted Prior Art, such that the heating element substantially follows said inner surface as doing so would amount to nothing more than a use of a known element for its intended use in a known environment to accomplish entirely expected result.

Response to Arguments

4. Applicant's arguments filed on 11 February 2003 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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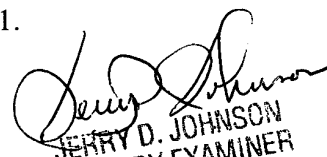
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (703) 305-5418. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (703) 308-6824.

The fax phone number for Group 1700 is (703) 872-9311 (for Official papers after Final), (703) 872-9310 (for other Official papers) and (703) 305-6078 (for Unofficial papers). When filing a fax in Group 1700, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0661.

BR
Basia Ridley
Examiner
Art Unit 1764


JERRY D. JOHNSON
PRIMARY EXAMINER
GROUP 1100

BR
April 17, 2003